MATH 181 Section 4 CRN 35016 ~ *Elementary Probability and Statistics* ~ Fall 2026
MWF 11:00-11:50 a.m. in RB 117

Instructor: Mrs. August Roberson
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Student Hours: T: 1:30-3:00 pm, Th: 10 am-12:30 pm, or by appointment

Text and Materials: Our text is ***Interactive Statistics: Informed Decisions Using Data, 3rd Edition,*** Michael Sullivan III and George Woodbury. We will use the Pearson online platform associated with the text. A physical textbook is not required. For more information about obtaining required course materials, see Ball State First Day. Students will regularly need to bring a laptop or tablet to class.

Course Description: Algebra-based introduction to statistical applications through descriptive methods, probability, normal distributions, confidence intervals, hypotheses tests, regression, and correlation. Misuses of statistics and common probability misconceptions are discussed. Statistical experiments and simulations are conducted. Technology use is integrated throughout. This course is part of the University Core Curriculum (UCC). The UCC enables students to: realize their intellectual potential, add breadth and depth to their educational experience, increase their personal well-being, and participate actively in their communities. Visit Cardinal Core for more information about UCC courses.

Recommended Background: Three years of college preparatory mathematics in high school or equivalent. Not open to students who have credit in MATH 221, MATH 320 or MATH 321.

Course Objectives: Students are expected to:

- Interpret and analyze various graphical representations of data including, but not limited to, histograms, box plots, and dot plots, to extract meaningful insights about the data's distribution and relationships.
- Interpret statistical measures such as mean, median, mode, and/or standard deviation within the context of a given data set.
- Create appropriate graphical displays of data to effectively represent categorical and quantitative data.
- Represent data in terms of numerical summaries, including measures of central tendency and measures of dispersion, to succinctly communicate the characteristics of a data set.
- Apply the rules of probability (addition and multiplication rules) to compute probabilities for simple and compound events in various contexts.
- Execute hypothesis tests for population means and proportions, utilizing appropriate statistical procedures to analyze data sets.
- Critically evaluate the validity of conclusions drawn from statistical analyses.
- Communicate the assumptions made when applying the Central Limit Theorem in estimating population parameters from sample statistics.
- Communicate the assumptions related to normality and independence when conducting hypothesis tests for means and proportions.
- Assess the reasonableness of statistical estimates and confidence intervals by examining their context.
- Evaluate the fit of a regression model.
- Identify the limitations of regression analysis and hypothesis testing.
- Communicate the findings of statistical analyses clearly and effectively, ensuring that conclusions are supported by the data.

Course Modality/Structure: The presentation of the course material will be delivered through the Pearson MyLab Statistics system and in-class activities. Laptops and tablets will be used at the direction of the instructor. Phone usage will not be allowed during class unless directed by the instructor. This is a face-to-face class which requires you to attend class.

Participation/Attendance: Learning is an interactive process. Class attendance and participation are essential for success. What we do in the course during our class meetings will determine a portion of your grade.

Students are expected to attend all of their classes and are responsible for notifying faculty once they anticipate being absent for any reason. Absences will be excused for the following: funeral and bereavement leave, jury duty, late course addition, military absences, observance of religious holidays, pregnancy leave, student-athletes participating in University or department-approved activities, and university advisories. The student will need to provide documentation (with confidential information redacted when appropriate) to the instructor if requested. Further explanation can be found **here**.

Students may encounter other circumstances (e.g., car accidents, job interviews) that result in course absences. Only faculty members can excuse these absences and adjustments are at the discretion of the instructor. Appropriate documentation will need to be provided to the instructor if requested. Students will be required to make up missed class work whether the absence is considered excused or unexcused.

If circumstances arise that require you to miss class, please talk with me as soon as possible to schedule a time to make up the class work missed. Please refer to the late policy for the timeline to make up missed class work. If you will be absent from a class for a university-sponsored activity, please contact me — beforehand — regarding any work you might miss. For university-sponsored activities, class work will need to be done beforehand to avoid loss of points.

As your instructor, I am here to facilitate the learning process and encourage you to actively participate in your own learning. Completing the interactive assignments in Pearson MyLab before class will be essential to understanding concepts. Complete academic integrity is expected in all aspects of this course. Use of laptops/tablets or cell phones during class time for purposes other than MATH 181 may result in loss of points. It is my goal to create an atmosphere in which we can all learn from one another.

Communication: Class announcements and important documents will be provided on the class Canvas site. The Canvas Inbox message system will be used for communication between the instructor and students. Students are expected to check the class Canvas site and their Canvas Inbox on a regular basis. Students should use the Canvas Inbox message system to communicate with the instructor. I will check Canvas messages regularly throughout the day M-F from 9am-4pm. During this time, I will *do my best* to respond by the end of the day. If you send me a message after 4pm M-Th, I will respond within 24 hours. Messages sent after 4pm on Friday and anytime on Saturday and Sunday will be responded to the following Monday by 4pm.

Grade Components (Total Points):

- **Interactive MyLab Pre-Work Assignments (300 pts):** These section preparation assignments will be due by 11:59 pm EST/EDT on the designated due date. A late penalty of 25% per day will apply. The lowest two scores will be dropped.
- **In-Class Work (600 pts):** With the exception of project check-in days, each class session will consist of in-class, interactive group work. Each of these in-class activities is worth up to 15 points. Please see the make-up policy for details on completing missed class work.
- **Project (600 pts):** Students will complete a semester long project in pairs. There will be three project check-ins throughout the semester. The completed project will be due during the scheduled final exam time slot.

Assignment details will be posted and updated on Canvas. Please check Canvas regularly to stay informed and on track. Internet connectivity and technical issues may occur and impede you from turning in work on time. Turn in work early and often, and set up a back-up plan, such as visiting a local library or borrowing a peer's computer to avoid late penalties.

Final Grade: Your grade will be determined from the following points:

Interactive MyLab Pre-Work	300 points
In-Class Work	600 points
Semester Project	600 points
Total	**1500 points**

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Evaluation: The grading scale below will be used to assign your final grade:

A	**≥ 93%**	**C+**	**77% ≤ X < 80%**	**D+**	**67% ≤ X < 70%**	**F**	**< 60%**
A-	**90% ≤ X < 93%**	**C**	**73% ≤ X < 77%**	**D**	**63% ≤ X < 67%**		
B+	**87% ≤ X < 90%**	**C-**	**70% ≤ X < 73%**	**D-**	**60% ≤ X < 63%**		
B	**83% ≤ X < 87%**						
B-	**80% ≤ X < 83%**						

Make-Up Policy: If a student is absent from class, they must make up missed classwork. If classwork is made up outside of class, the activity is worth up to 12 points. If a student knows in advance they will be gone, the student may complete the activity prior to their absence to avoid loss of points. Class work must be made up within one week of the student's absence to earn points. For example, if a student misses class on a Monday, the missed class work must be made up by the end of the day the following Monday.

Final Project: Students will work on a semester long project, in pairs, that will be due during the final exam time slot for class. There will be periodic project check-ins throughout the semester during which students will receive feedback on the portion required to be completed at each check-in. The final exam time slot for this section is: Thursday, December 11th, 9:45-11:45 am.

Important Dates: There are no classes held on the following days: Labor Day: September 7, Fall Break: October 12 – 13, Thanksgiving Break: November 25 – 27.

Withdrawal: The course withdrawal period ends Wednesday, October 28. Before this date, students can elect to receive a "W" for the course by completing and submitting the proper form. The instructor's permission is not required. For details, see https://www.bsu.edu/about/administrativeoffices/registrar/registration-activities/withdraw-from-classes as well as Degree Requirements and Time Limits in the current Undergraduate Catalog OR Withdrawal Procedures in the current graduate catalog.

Technical Information: It is your responsibility to become familiar with the class interface and seek help if necessary. BSU provides resources to help you. A lack of Canvas knowledge is not an acceptable excuse for late or incomplete work.

- **Technical Assistance**: If you have technical questions, you can contact Ball State's Help desk. The helpdesk can be contacted at 765-285-1517 (Toll-Free 866-771-3276) or at https://bsu.service-now.com/helpdesk
  Hours of Operation: Monday-Thursday: 7:30am to 7:00pm & Friday: 7:30am- 5pm
- **Pearson MyLab:** If you have technical questions concerning the Pearson MyLab system, you can get support by going to https://support.pearson.com and clicking on the MyLab tile.

University Statement: We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse.

Disability Statement: If you need course adaptations or accommodations because of a disability, please contact the instructor of record as soon as possible. Ball State's Disability Services Office coordinates services for students with disabilities; documentation of a disability needs to be on file in that office before any accommodations can be provided. Disability Services can be contacted at 765-285-5293 or dsd@bsu.edu.

The Learning Center: The Learning Center offers free Tutoring and Academic Coaching for many courses at Ball State. Students can make appointments for online (Zoom) or in-person (NQ 350) appointments. To make an appointment, visit myballstate.bsu.edu and click on "Navigate" in the Academic Tools section, or just go directly to **https://bsu.navigate.eab.com**.

Testing accommodations for students with disabilities are available for students who have received the appropriate documentation from Disability Services. Tests may be administered in the Learning Center. For more information about Learning Center programming, visit bsu.edu/learningcenter or call 765-285-1006. Follow us on Instagram: BallStateLC.

Mental health concerns: The Ball State University Counseling Center offers free and confidential services to all students. The Counseling Center is located in Lucina Hall, Room 320. To schedule an appointment, you can contact us at 765-285-1736. Ball State now also offers a 24/7 Crisis Line, which can be reached at 765-285-HOPE (4673). The Crisis Line is a mental health resource for those who are struggling with any mental health concerns, including thoughts of self-harm and/or suicide. All Ball State students also have access to several on-demand, self-help resources through a variety of different platforms. All of these resources, including a direct link to our website, can be found here.

The Basic Needs Hub: If you are having difficulty affording enough food, do not have a safe and reliable place to sleep, and/or experiencing an emergency or crisis, help is available through the Basic Needs Hub. The Basic Needs Hub has information, resources, and provides individualized support to students. To talk with a supportive staff member about your experience, receive one on one assistance, or learn more about resources, you can submit a Basic Needs Assistance Form.

Freedom of Expression: In this course, we are committed to fostering a learning environment that values intellectual diversity, encourages free expression, and promotes open inquiry. As members of the Ball State Community, we treat each person in the Ball State community with civility, courtesy, compassion, and dignity and respect and learn from differences in people, ideas, and opinions. Please review Ball State University's Statement on Freedom of Expression, the resources on Ball State's Freedom of Expression webpage, and Ball State's Beneficence Pledge.

Title IX: Ball State University is committed to maintaining an educational environment free from sex discrimination, including sexual harassment, sexual misconduct, dating and domestic violence, and stalking. Students who experience or witness conduct that may violate University policy are encouraged to seek support and assistance. The Title IX Office can provide information about reporting options, supportive measures, and available resources. Contact the Title IX Office at 765-285-1545 or at titleix@bsu.edu. **As your instructor, I am a mandatory reporter. If you disclose information to me about conduct that may constitute sex discrimination or sexual misconduct, I am required to notify the Title IX Coordinator.** This includes information shared in class discussions, assignments, or private conversations. If you wish to speak with someone confidentially, you may contact the Counseling Center or the Center for Survivor Support.

University Grade Appeal Policy: If you believe you received a final course grade that does not reflect your performance due to fairness or a procedural issue, you have the right to file an appeal within 5 school days after final grades are posted by the Office of the Registrar. Review the University Grade Appeal Policy and Process.

Student Academic Ethics Policy: Honesty, trust, and personal responsibility are fundamental attributes of the university community. Academic dishonesty and other forms of academic misconduct threaten the foundation of an institution dedicated to the pursuit of knowledge and will not be tolerated. To maintain its credibility and reputation, and to equitably assign evaluations of scholastic and creative performance, Ball State University is committed to maintaining a climate that upholds and values the highest standards of academic integrity. Visit the VPAA's academic integrity website (Students tab) for resources on understanding academic integrity, citing sources properly, and avoiding inadvertent academic dishonesty. To learn about BSU's academic integrity expectations and students' rights, please read the University Student Academic Ethics Policy. Academic integrity violations include giving or receiving an unfair academic advantage (cheating), presenting someone else's ideas or work as your own (plagiarism), and falsifying academic records. All work conducted and/or submitted in this course should reflect your own ideas and demonstrate your current knowledge, abilities, and skills. Therefore, generative AI should not be used to complete any portion of the assignment(s). Doing so constitutes a violation of Ball State University's Student Academic Ethics Policy. Check with me if you are unsure whether something constitutes academic dishonesty.

This syllabus is subject to change in the event of extenuating circumstances.